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| 10/591,744 | 09/01/2006 | Stephan Neffgen | GLAWE-13093 | 3419 |
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| Casimir Jones, S.C. 2275 DEMING WAY, SUITE 310 MIDDLETON, WI 53562 | | | EXAMINER PEPITONE, MICHAEL F | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 10/591,744 | Applicant(s) NEFFGEN ET AL. | |
| | Examiner MICHAEL PEPITONE | Art Unit 1796 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 depends from claim 5, wherein claim 5 recites the dental material additionally contains pyrogenic and/or wet-precipitated silicic acids, however, claim 6 recites an amount of silicic acids of 0 to 30 wt%. It is unclear how the dental material of claim 6 could contain 0 wt% of silicic acids, therefor claim 6 is indefinite.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-10 and 12-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Angeletakis *et al.* (US 6,121,344).

Regarding claims 1-10, 12-14: Angeletakis *et al.* teaches dental composite resin (1:10-18), with example A (8:15-30) comprising 27.6 wt% of Resin containing bisphenol A diglycidyl

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ether dimethacrylate, triethyleneglycol dimethacrylate, camphorquinone, and 2-ethyhexyl-4-(dimethylamino)benzoate (6:52-65; Table 2); 63.7 wt% of silanated { γ -methacryloxypropyltrimethoxysilane} barium aluminoborosilicate having a mean particle size of 0.62 μm {prepared by milling (ground) (5:35-6:36), radiopaque (8:31-45; Table 4)}; 5.0 wt% of silanated { γ -methacryloxypropyltrimethoxysilane} OX-50 fumed silica having an average particle size of 0.04 μm {40 nm}, and 3.7 wt% of TS-530 hexamethyldisilazane treated fumed silica (7:37-44) having an average particle size of 0.02 μm {20 nm}.

Note: the instant specification discloses feature b) of the claim is obtained after the nanoscale filler is incorporated into the binder {see specification, pg. 3, ln. 20-24; pg. 5, ln. 17-27; pg. 24, ln. 12-19}. “[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) [See MPEP 2113].

The Office realizes that all the claimed effects or physical properties are not positively stated by the reference. However, the reference teaches all of the claimed reagents and was prepared under similar conditions. Therefore, the claimed effects and physical properties, i.e. the nanoscale filler having at least 20 particle number% of nanoparticles as aggregated particles, would inherently be achieved by a composition with all the claimed ingredients. If it is the applicants’ position that this would not be the case: (1) evidence would need to be presented to support applicant’s position; and (2) it would be the Office’s position that the application

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contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties and effects with only the claimed ingredients.

Claims 15 is rejected under 35 U.S.C. 102(b) as being anticipated by Angeletakis *et al.* (US 6,121,344).

Regarding claim 15: Angeletakis *et al.* teaches a process for preparing dental composite resin for use in dental restoratives (1:10-27; example A; 8:15-30), the composite resin was prepared by mixing: 27.6 wt% of Resin containing bisphenol A diglycidyl ether dimethacrylate, triethyleneglycol dimethacrylate, camphorquinone, and 2-ethyhexyl-4-(dimethylamino)benzoate (6:52-65; Table 2); 63.7 wt% of silanated { γ -methacryloxypropyltrimethoxysilane} barium aluminoborosilicate having a mean particle size of 0.62 μm {prepared by milling (ground) (5:35-6:36)}; 5.0 wt% of silanated OX-50 fumed silica having an average particle size of 0.04 μm {40 nm}, prepared by silanating agglomerated OX-50 fumed silica with γ -methacryloxypropyltrimethoxysilane (7:25-35); and 3.7 wt% of TS-530 hexamethyldisilazane treated fumed silica (7:37-44) having an average particle size of 0.02 μm {20 nm} (example A; 8:15-30) [the resin was prepared; OX-50 fumed silica (40 nm) was treated with γ -methacryloxypropyltrimethoxysilane; barium aluminoborosilicate (0.62 μm) was prepared by milling (ground); the silanated fillers and Resin were thoroughly mixed]; and the samples were cured into a dental composite (8:62-66) for stress/load bearing restorations (9:12-10;21; 11:14-24) such as crowns, inlays, onlays, fillings, etc (1:10-27).

The Office realizes that all the claimed effects or physical properties are not positively stated by the reference. However, the reference teaches all of the claimed reagents and was

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prepared under similar conditions. Therefore, the claimed effects and physical properties, i.e. incorporation of the nanoscale filler into the organic binder until at least 50 wt% of nanoscale filler has a particle diameter of less than 200 nm, would inherently be achieved by a composition with all the claimed ingredients. If it is the applicants' position that this would not be the case: (1) evidence would need to be presented to support applicant's position; and (2) it would be the Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties and effects with only the claimed ingredients.

Claims 16-24 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Angeletakis *et al.* (US 6,121,344).

Regarding claims 16-24 and 26: Angeletakis *et al.* teaches process for the production of a dental composite resin (1:10-27; example A; 8:15-30), the composite resin was prepared by mixing: 27.6 wt% of Resin containing bisphenol A diglycidyl ether dimethacrylate, triethyleneglycol dimethacrylate, camphorquinone, and 2-ethyhexyl-4-(dimethylamino)benzoate (6:52-65; Table 2); 63.7 wt% of silanated { γ -methacryloxypropyltrimethoxysilane} barium aluminoborosilicate having a mean particle size of 0.62 μm {prepared by milling (ground) (5:35-6:36)}; 5.0 wt% of silanated OX-50 fumed silica having an average particle size of 0.04 μm {40 nm}, prepared by silanating agglomerated OX-50 fumed silica with γ -methacryloxypropyltrimethoxysilane {polymerizable; i.e. a binder} by spraying in a V-blender (7:25-35); and 3.7 wt% of TS-530 hexamethyldisilazane treated fumed silica (7:37-44) having an average particle size of 0.02 μm {20 nm} (example A; 8:15-30) [the resin was prepared; OX-50 fumed silica (40 nm) was treated with γ -methacryloxypropyltrimethoxysilane by spraying in a V-

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blender; barium aluminoborosilicate (0.62 μm) was prepared by milling (ground); the silanated fillers and Resin were thoroughly mixed]; and the samples were cured into a dental composite (8:62-66) for stress/load bearing restorations (9:12-10;21; 11:14-24) such as crowns, inlays, onlays, fillings, etc (1:10-27).

The Office realizes that all the claimed effects or physical properties are not positively stated by the reference. However, the reference teaches all of the claimed reagents and was prepared under similar conditions. Therefore, the claimed effects and physical properties, i.e. incorporation of the nanoscale filler into the organic binder until at least 50 wt% of nanoscale filler has a particle diameter of less than 200 nm, would inherently be achieved by a composition with all the claimed ingredients. If it is the applicants' position that this would not be the case: (1) evidence would need to be presented to support applicant's position; and (2) it would be the Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties and effects with only the claimed ingredients.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

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evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Angeletakis *et al.* (US 6,121,344) as applied to claim 1 above, and further in view of Teramae *et al.* (US 2002/0022677); or further in view of Sato (US 5,773,489).

Regarding claim 11: Angeletakis *et al.* teaches the basic claimed composition [as set forth above with respect to claim 1].

Angeletakis *et al.* does not teach the filler of instant claim 11. However, Teramae *et al.* teaches dental composite materials (§ 1) comprising organo-inorganic fillers (§ 36) prepared by polymerization-covering the surface of an inorganic filler or aggregate filler (§ 24, 31-33) with a polymerizable monomer, and then grinding it to a proper particle size of 0.5 to 30 μm (§ 24, 31, 36). Angeletakis *et al.* and Teramae *et al.* are analogous art because they are concerned with a similar technical difficulty, namely the preparation dental composite resins. At the time of invention a person of ordinary skill in the art would have found it obvious to have combined 0.5 to 30 μm organo-inorganic fillers, as taught by Teramae *et al.* in the invention of Angeletakis *et al.*, and would have been motivated to do so since Teramae *et al.* suggests that such organo-inorganic fillers are known fillers generally used in dental composites (§ 36).

Alternatively, Angeletakis *et al.* does not teach the filler of instant claim 11. However, Sato teaches dental composite materials (1:5-15) comprising inorganic-organic composite fillers having a particle size of 0.1 to 50 μm (7:33-49; 8:65-9:25). Angeletakis *et al.* and Sato are

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analogous art because they are concerned with a similar technical difficulty, namely the preparation dental composite resins. At the time of invention a person of ordinary skill in the art would have found it obvious to have combined 0.1 to 50 μm inorganic-organic composite fillers, as taught by Sato in the invention of Angeletakis *et al.*, and would have been motivated to do so since Sato suggests that such inorganic-organic composite fillers provide dental restorative materials having superior mechanical strength and abrasion resistance and a suitable consistency and handling, shows a coefficient of thermal expansion close to teeth and a low shrinkage value, and exhibits a suitable transparency and surface smoothness (3:35-43; 29:1-11).

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Angeletakis *et al.* (US 6,121,344) as applied to claim 16 above, and further in view of Teramae *et al.* (US 2002/0022677); or further in view of Sato (US 5,773,489).

Regarding claim 25: Angeletakis *et al.* teaches the basic claimed composition [as set forth above with respect to claim 16].

Angeletakis *et al.* does not teach the filler of instant claim 11. However, Teramae *et al.* teaches dental composite materials (§ 1) comprising organo-inorganic fillers (§ 36) prepared by polymerization-covering the surface of an inorganic filler or aggregate filler (§ 24, 31-33) with a polymerizable monomer, and then grinding it to a proper particle size of 0.5 to 30 μm (§ 24, 31, 36). Angeletakis *et al.* and Teramae *et al.* are analogous art because they are concerned with a similar technical difficulty, namely the preparation dental composite resins. At the time of invention a person of ordinary skill in the art would have found it obvious to have combined 0.5 to 30 μm organo-inorganic fillers, as taught by Teramae *et al.* in the invention of Angeletakis *et*

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al., and would have been motivated to do so since Teramae *et al.* suggests that such organo-inorganic fillers are known fillers generally used in dental composites (§ 36).

Alternatively, Angeletakis *et al.* does not teach the filler of instant claim 11. However, Sato teaches dental composite materials (1:5-15) comprising inorganic-organic composite fillers having a particle size of 0.1 to 50 μm (7:33-49; 8:65-9:25). Angeletakis *et al.* and Sato are analogous art because they are concerned with a similar technical difficulty, namely the preparation dental composite resins. At the time of invention a person of ordinary skill in the art would have found it obvious to have combined 0.1 to 50 μm inorganic-organic composite fillers, as taught by Sato in the invention of Angeletakis *et al.*, and would have been motivated to do so since Sato suggests that such inorganic-organic composite fillers provide dental restorative materials having superior mechanical strength and abrasion resistance and a suitable consistency and handling, shows a coefficient of thermal expansion close to teeth and a low shrinkage value, and exhibits a suitable transparency and surface smoothness (3:35-43; 29:1-11).

Response to Arguments

Applicant's arguments with respect to claims 1-26 have been considered but are moot in view of the new ground(s) of rejection.

Teramae *et al.* (US 2002/0022677) {corresponding to Teramae *et al.* (EP 1149573)} was relied on for disclosing dental composite materials comprising 0.5 to 30 μm organo-inorganic fillers.

The prior art made of record and not relied upon is considered pertinent to applicants' disclosure. See attached form PTO-892.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL PEPITONE whose telephone number is (571)270-3299. The examiner can normally be reached on M-F, 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MFP
28-January-10

/Mark Eashoo/
Supervisory Patent Examiner, Art Unit 1796